

A Roadmap to 10GW savings from Energy Efficiency in Indonesia

Virginie Letschert
International Energy Studies
Lawrence Berkeley National Laboratory

IEECCE 2017
May 9 – 10, 2017 Jakarta Convention Center

Lawrence Berkeley National Laboratory

*Managed by the University of California for the United States
Department of Energy*



Lawrence Berkeley
National Laboratory



"Bringing Science Solutions to the World"

- 4,200 employees (>200 UC faculty on staff at LBNL)
- ~\$820 million annual budget
- 13 Nobel Prizes + many members of the IPCC – 2007 Nobel Peace Prize
- Buildings energy efficiency including efficiency standards was pioneered by LBNL in the 1970s by Art Rosenfeld and others
- Provides technical support to the U.S. Department of Energy's Appliance Efficiency Standards program (since the late 1980s)
- International Energy Studies Group collaborates with countries around the World to support energy efficiency programs.



Clean Energy Ministerial and the Super-efficient Equipment and Appliance Deployment (SEAD) Initiative



The Clean Energy Ministerial (CEM) is a forum of the world's largest and most forward-leaning countries working together to **accelerate the global transition to clean energy**.

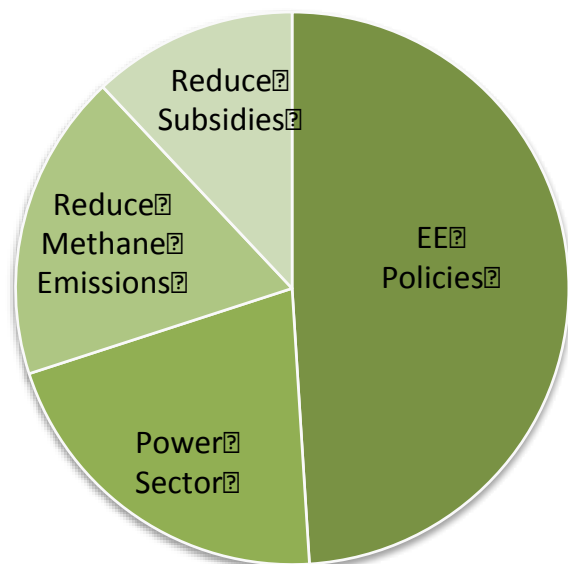


- ❖ **High-level political engagement** paired with **sustained initiatives** and **high-visibility campaigns** to raise political ambition and support clean energy policy and technology deployment.
- ❖ As an **implementation forum**, CEM will **help countries deliver on their clean energy goals** post COP21 and build confidence and capacity to increase ambition even further over time.
- ❖ SEAD Initiative is a **voluntary collaboration among governments** working to promote the manufacture, purchase, and use of **energy-efficient appliances, lighting, and equipment** worldwide.

Government of Indonesia has joined SEAD in July 2014
LBNL provides technical support to the SEAD initiative and other initiatives and campaigns under CEM

EE Policy Global Impacts

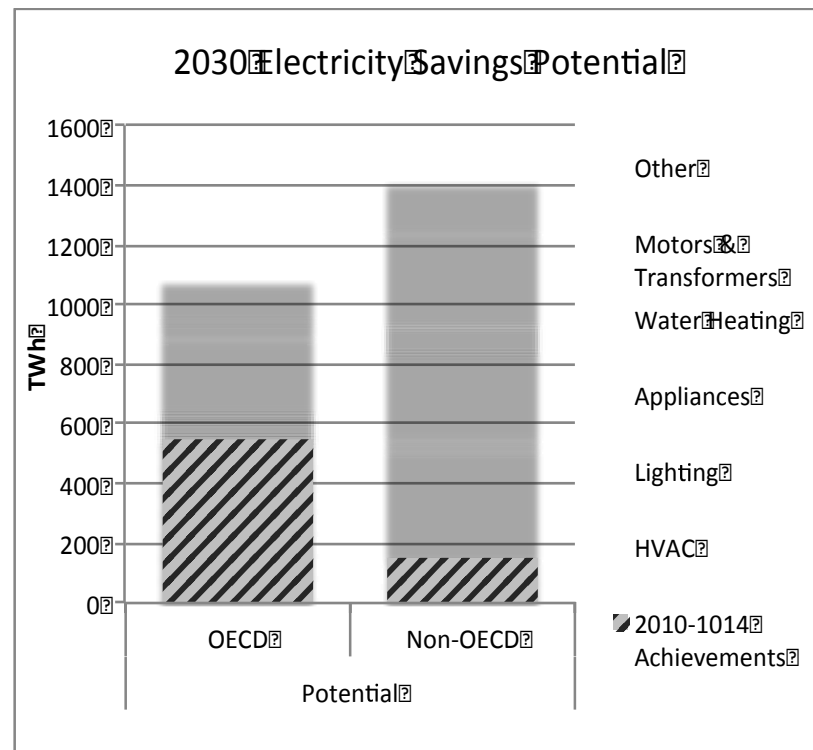
Energy Efficiency #1 in GHG Mitigation



Half of CO₂ mitigation may come from EE policy.

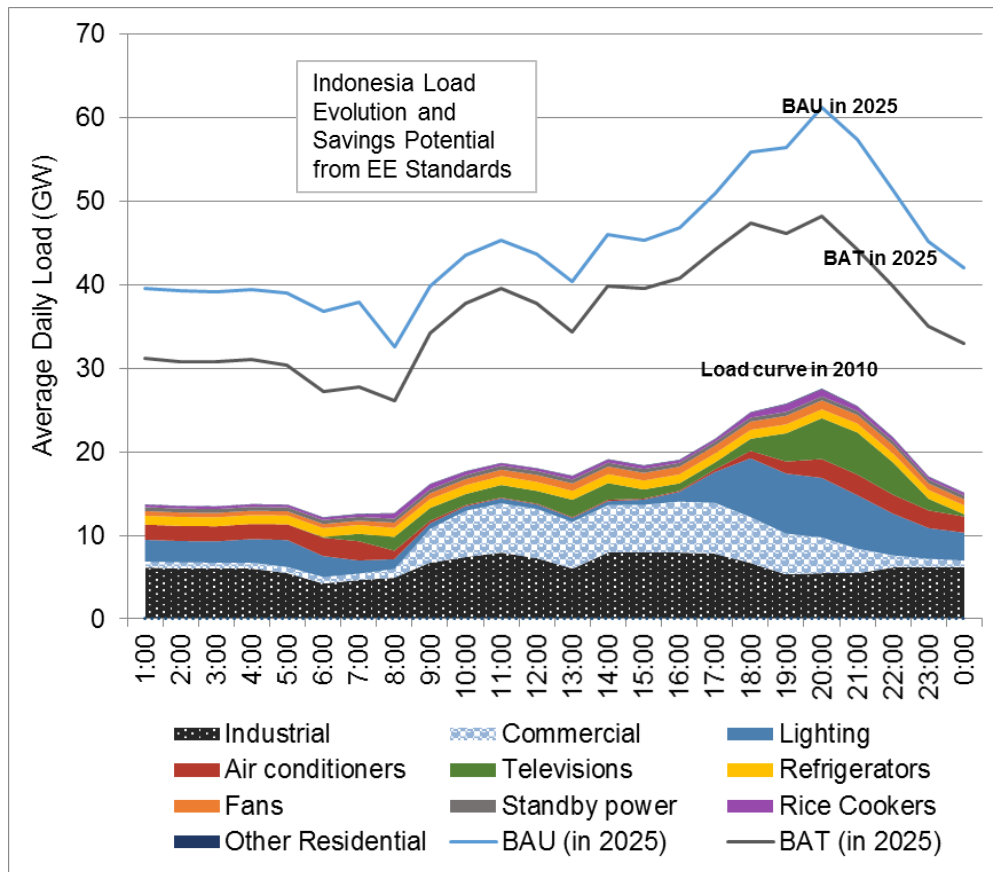
Source: IEA 2012

Most of the remaining potential is in non-OECD economies



Source: LBNL BUENAS Analysis for SEAD – BAT and recent savings vs. 2010 baseline

EE in Indonesia : Infrastructure Challenge



Source: LBNL - McNeil et al 2017 (Upcoming Journal Article)

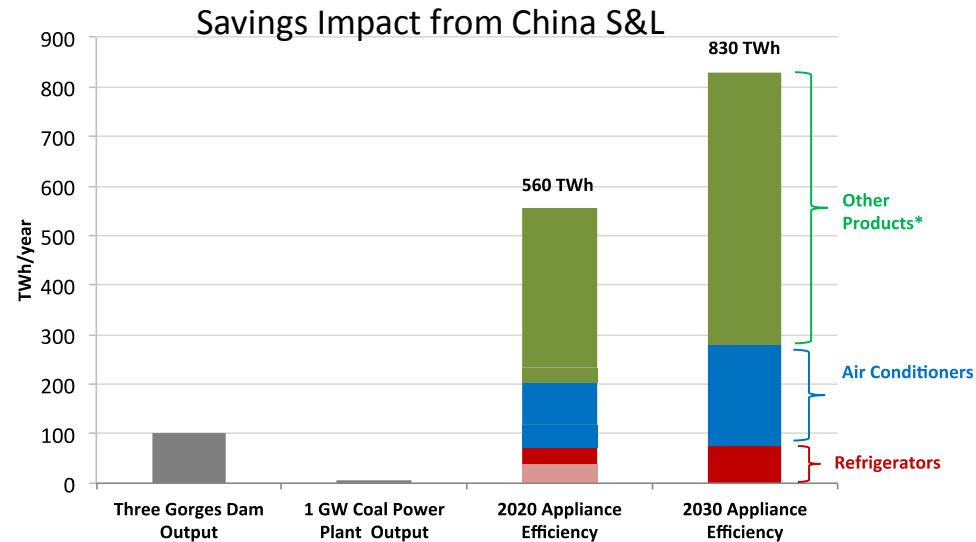
Indonesia needs 50GW of capacity by 2030, and will spend \$73 bn to get first 35GW by 2019 (mostly thermal), also targeting 23% renewable energy by 2025.

We identify over 10 GW savings from EE policy for appliances by 2025, thus bridging gap for additional capacity needs. Main barriers are technical capacity and financing.

EE policy should be fully integrated into any power sector projects, renewable or otherwise

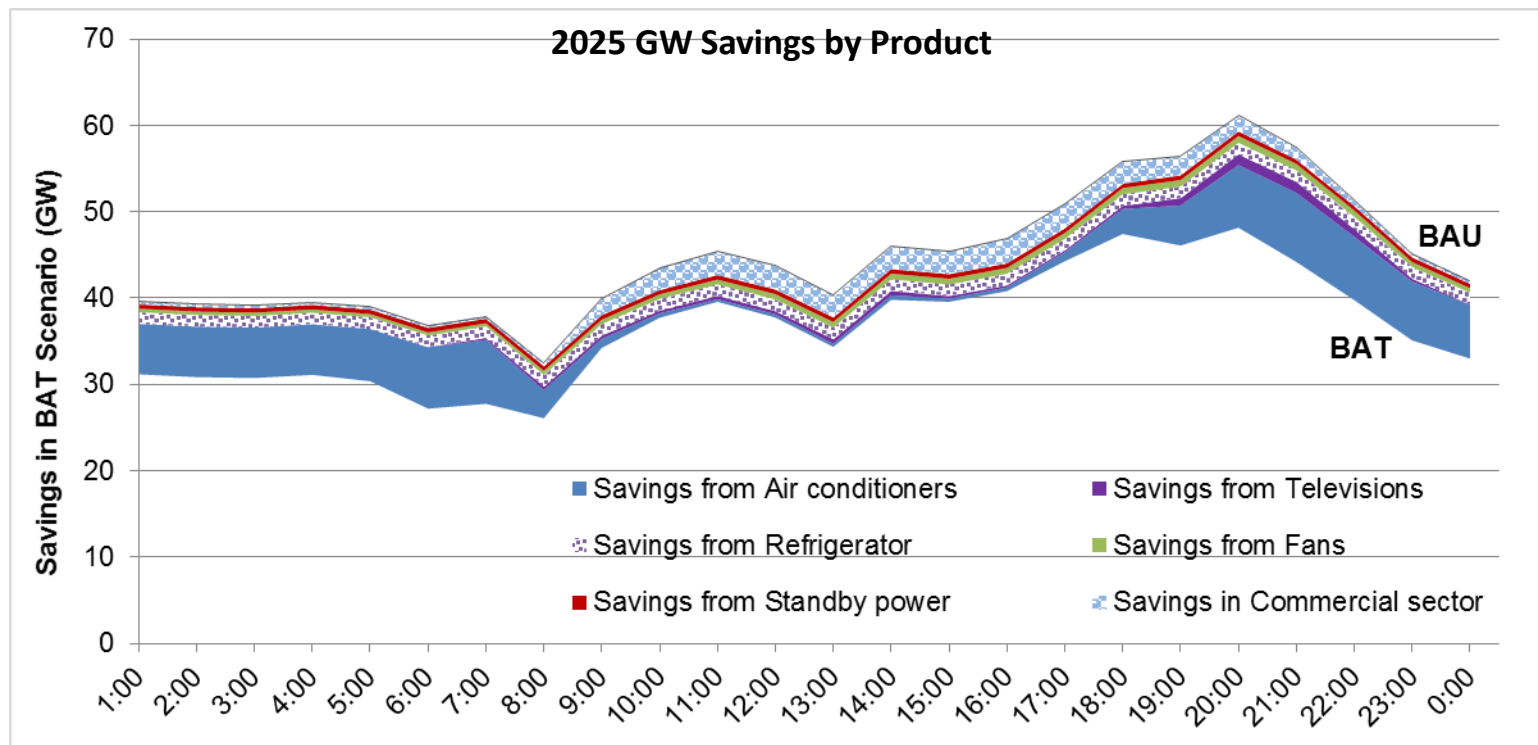
Introduction to 10GW Roadmap

- Minister Luhut's visit (Sept 2016), LBNL presented experience and success stories in EE in major world economies, such as China
- ...followed by delegation visit at LBNL, led by CMMA (December 2016)



- **Objective:** Define essential components to achieve target of 10 GW reduction in projected peak power consumption in Indonesia in 2025 and collaborate on technical analysis and capacity building to achieve this.
- **Policy Focus:** Appliance efficiency standards focusing on a few high-impact products. Other policies and programs to be added as appropriate.

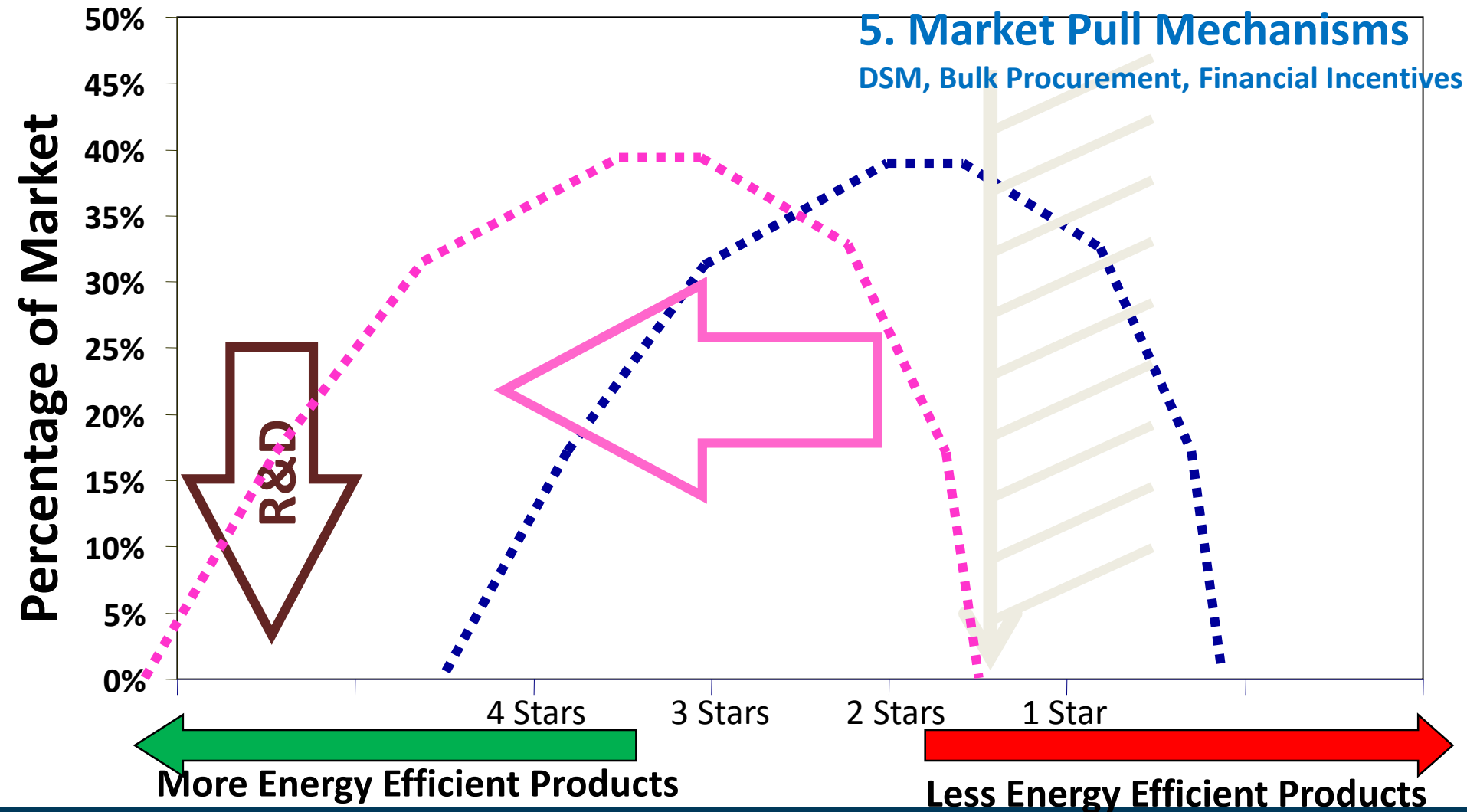
Where Do Savings Come From?



- **Biggest demand reduction by far comes from EE air conditioners** due to (1) high growth (2) high usage and (3) strong technology opportunity – 7 GW by 2025
- Refrigerators and televisions are a second and third-place - 1.3 and 1.2 GW by 2025, respectively.

Capturing the potential – how to Achieve Savings?

1. Understand the Market
2. Information & Labeling
3. Stimulate Research & Dev.
4. Set MEPS
5. Market Pull Mechanisms
DSM, Bulk Procurement, Financial Incentives

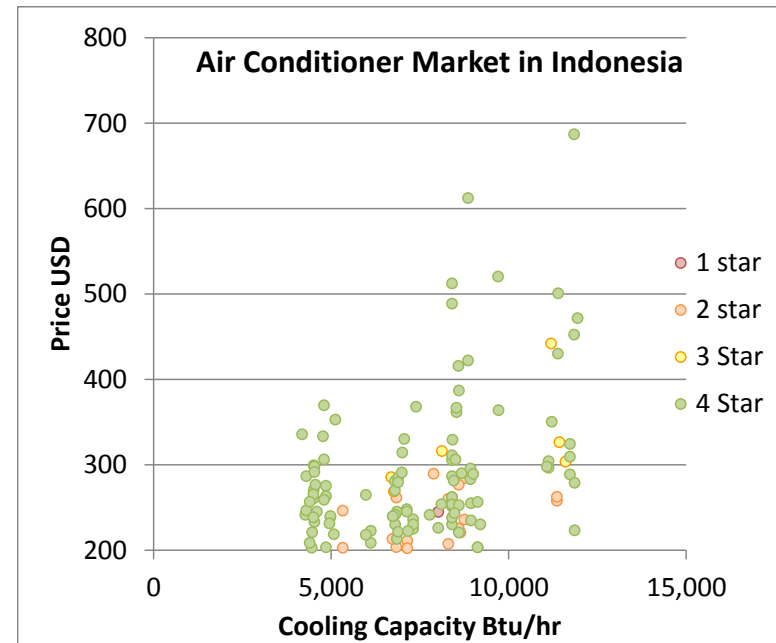


Pitfalls and Support

The opportunity is here, but impacts from EE policy are not guaranteed. Common pitfalls are:

- Lack of Prioritization – Focus on small-impact products at the expense of larger ones
- Manufacturer Opposition – Industry not clear on or threatened by standards
- Lack of Market Knowledge – no insight into product types, efficiency level, cost of efficiency
- Lack of Analysis – unclear metrics and methods for setting targets
- Missing Feedback – Lack of robust evaluation and impacts tracking

International community has recognized these barriers, and develop sets of methods and tools to support countries in the development/evaluation of their programs.



IDEA Database – upcoming paper for EEDAL Conference

Recommendations & Takeaways

- ◆ Creation of Steering Committee to review existing policies / barriers
 - ❑ 10 GW Roadmap implementation lead – ESDM.
 - ❑ Coordinating Ministry – Maritimes Affairs (leading Advisory steering committee).
 - ❑ Members: BAPPENAS, Ministry of Industry, Ministry of Finance, Ministry of Environment and Forestry, DEN, PLN...
- ◆ Stakeholders engagement: Manufacturers, Consumer Advocates, Environmentalists
- ◆ Institutional Capacity Development through research and collaborations (BPPT, ITB, BSN, Bali Clean Energy CoE, etc)
- ◆ Capacity building for Implementers (testing, evaluators, enforcement, ESCOs, etc)
- ◆ These will require massive investments in human capacities, financing for manufacturers, users - *still very limited compared to current investment on supply side.*

Thank you!

For more information:

<https://ies.lbl.gov/>

Email: Vletschert@lbl.gov